

What is claimed is :

1. A panel display device using a hologram pattern liquid crystal comprising:

a core that light from the light source is incident thereto;

a optical waveguide formed on a part of outside of the core and made of cladding causing total reflection for light processed along the core; and

a liquid crystal having a hologram pattern formed between the first and second transparent electrodes formed on the other surface of the optical waveguide for adjusting wavelength of the light transmitted through the optical waveguide and quantity of the transmitted light.

2. A panel display device using a hologram pattern liquid crystal as claimed in claim 1, wherein the light incident into the optical waveguide core is progressed along the optical wavelength in the optical waveguide core by total reflection phenomenon by difference of refractive index between the optical waveguide core and the optical waveguide cladding.

3. A panel display device using a hologram pattern liquid crystal as claimed in claim 1, wherein a reflecting mirror mounted on the other end surface of the optical waveguide which is an opposite location to the light source

and the perpendicular location to the liquid crystal and reflecting the light progressed along the optical waveguide in order for the reflected light to be progressed along the optical waveguide toward opposite direction is further included.

4. A panel display device using a hologram pattern liquid crystal as claimed in claim 1, wherein the light source is located in a side area of the optical waveguide core for the illuminated light to be incident into the optical waveguide core. In this instance, a incident method of light becomes different depending on a kind of the light source and a type of the optical waveguide core.

5. A panel display device using a hologram pattern liquid crystal as claimed in claim 4, wherein the light source places a long light source illuminating one surface of the screen in a perpendicular direction, and the optical waveguide core illuminates whole pixels of the screen by spreading the incident light from the light source on the entire surface of the optical waveguide by using integral optical waveguide core.

6. A panel display device using a hologram pattern liquid crystal as claimed in claim 4, wherein the light source places a long light source illuminating one surface of the screen in a perpendicular direction, and the optical waveguide

core places in a linear shape for corresponded to pixels comprising one column of the screen and the light incident from the light source illuminates pixels of corresponding column of the whole screen by progressing along the corresponding optical waveguide core.

7. A panel display device using a hologram pattern liquid crystal as claimed in claim 4, wherein the light source uses light source corresponding each column of the screen and the optical waveguide core is placed in a linear shape to be corresponded to pixels comprising one column of the screen and the light emitted from the light source is directly incident into the corresponding optical waveguide core, and the light incident into the corresponding optical waveguide core is progressed along the corresponding optical waveguide core for illuminating pixels of the corresponding column of the whole screen.

8. A panel display device using a hologram pattern liquid crystal as claimed in claim 1, wherein the liquid crystal of the hologram pattern comprises liquid crystal molecules which form the hologram pattern and a monomer. The liquid crystal molecules and the monomer are periodically arranged and have a band shape.

9. A panel display device using a hologram pattern

liquid crystal as claimed in claim 8, wherein the refraction index of the liquid crystal molecules and the refraction index of the monomer are different from each other to form a periodic refraction index lattice.

10. A panel display device using a hologram pattern liquid crystal as claimed in claim 8, wherein a laser reference light and a laser light are irradiated into a mixed liquid of liquid crystal and monomer, and a band-shaped interference pattern is formed due to the phase difference between the two laser lights.

11. A panel display device using a hologram pattern liquid crystal as claimed in claim 1, wherein the gradation of the picture can be represented by adjusting the transmission factor of the liquid crystal by adjusting the level of the voltage of the respective pixels.

12. A panel display device using a hologram pattern liquid crystal as claimed in claim 1, wherein the quantity of light can be adjusted by adjusting the frequency of on/off operation of the respective pixels for a predetermined time.

13. A panel display device using a hologram pattern liquid crystal as claimed in claim 1, wherein

sub-pixel is formed for each pixel by adjusting periodic lattice by changing diffraction components on each pixel and dividing into R, G, and B sub-pixels, respectively when forming hologram patterns on the liquid crystal, and the voltage is applied to R, G, and B sub-pixels of each pixel corresponding to image signal of the corresponding pixel in order to implement the color image of each pixel.